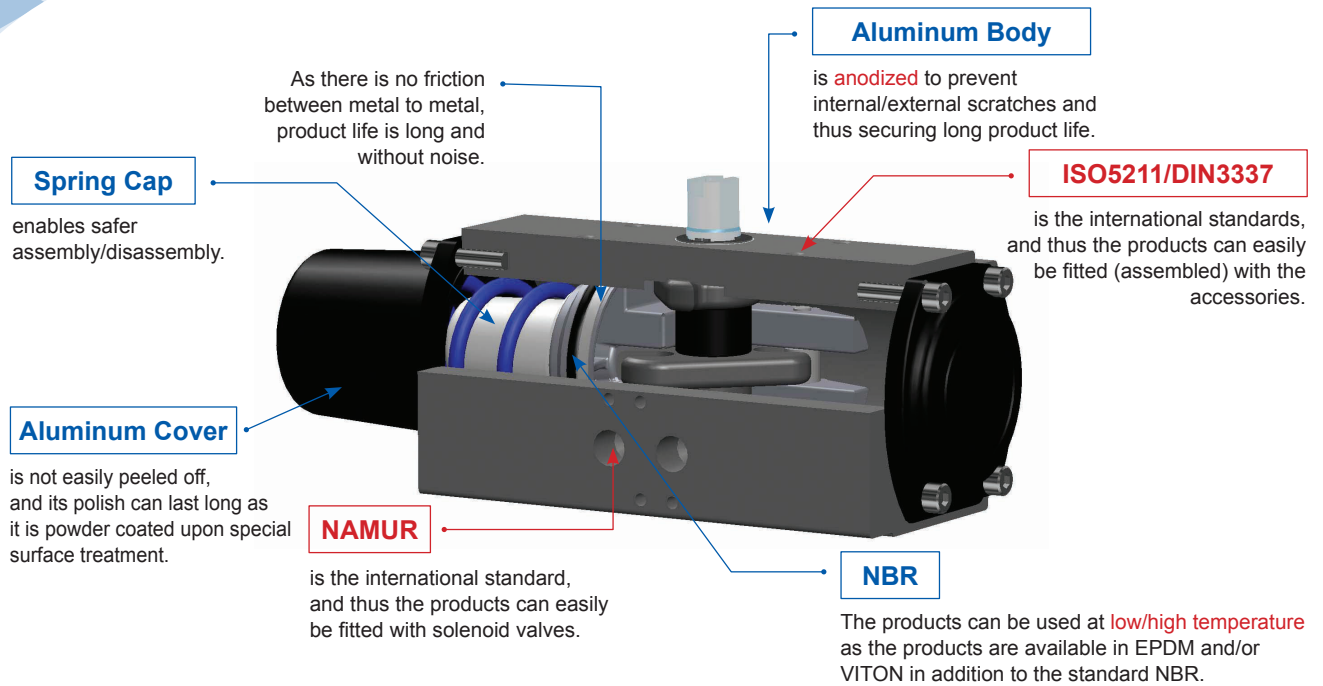


Pneumatic actuator (A/R series)



► Model range



A D 65

① ② ③

①	A series - Scotch yoke R series - Rack & pinion	AD 50/65/80/100/125/140/160/185/210/250/300
②	D-Double acting S-Spring return	AS 50/65/80/100/125/140/160/185/210/250/300
③	Internal diameter	RD 32/40/50/65/80/90/100/115/125/140/160/185/210 RS 40/50/65/80/90/100/115/125/140/160/185/210

► Model code

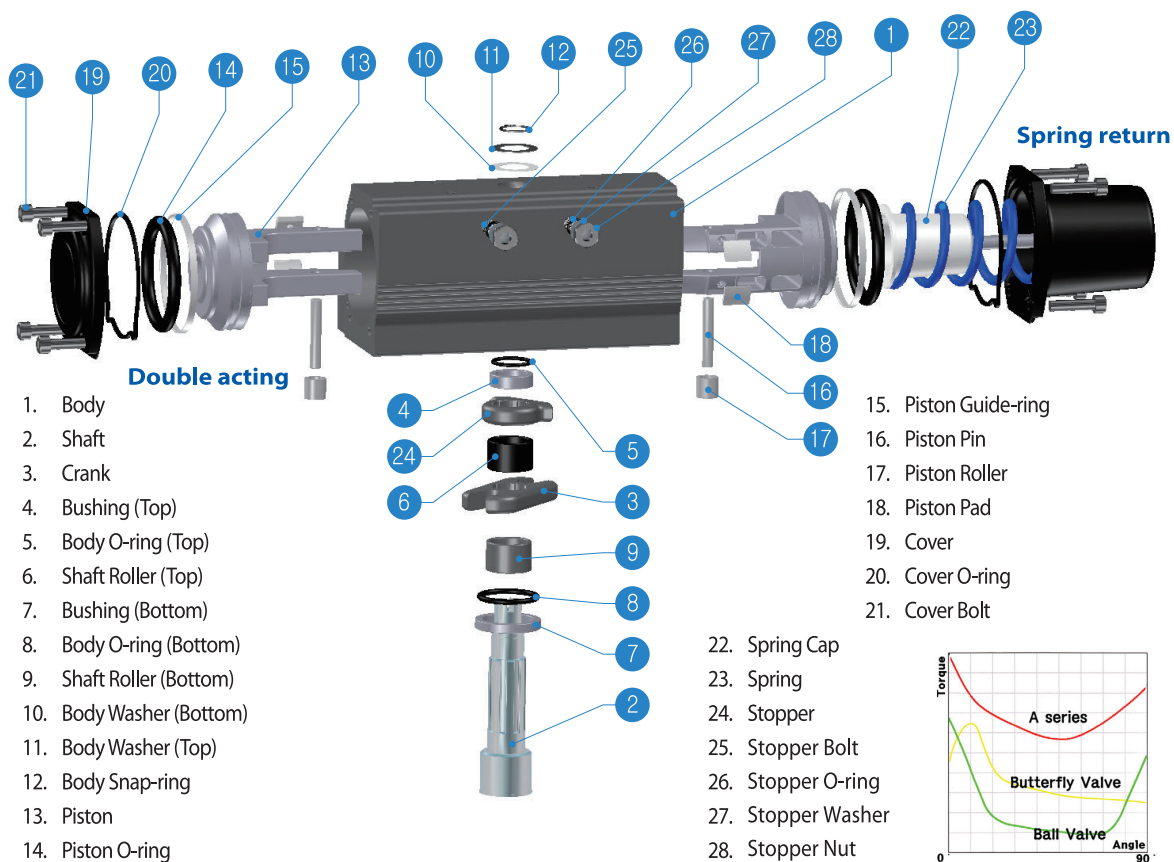
A6ND-AKKB-1012C27-OP

(a)	(d)	(e)	(f)	(h)	(i)	(k)
Mechanism	SPRING	Action	Body color	Indicator	ISO5211	OPTION
A:scotch yoke R:rack pinion	D:Double acting W:Weak spring M:Middle spring S:Strong spring H:Hand wheel No.:RS spring qty	A:Action A (Fail closed) B:Action B (Fail open) C:Action C (Fail closed/Open CW) D:Action B (Fain open/Open CW)	K:Black L:Blue W:White Y:Yellow R:Red	A:A type B:B type C:C type D:D type	3:F03 5:F05 : ① STEM C11:11*11 C14:14*14	T4:PT1/4 T8:PT3/8 T2:PT1/2 N4:NPT1/4 N8:NPT3/8 N2:NPT1/2 O45:Open -45° (center stopper) SE1:end cap stopper HW:Hand wheel
(b) Diameter 3:32 4:40 :			(g) Cover color K:Black L:Blue M:Mint R:Red			
(c) O-RING N:NBR V:VITON (High temp.) E:EPDM(Low temp.)						

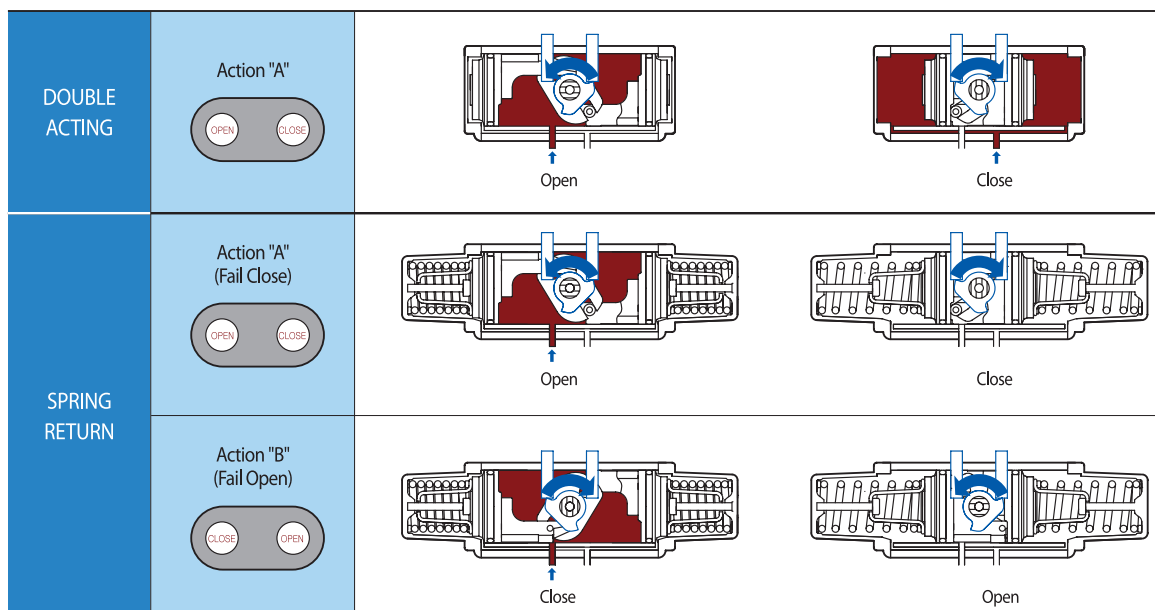
KOSA PLUS
KOSAPLUS Co.,Ltd.
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Catalog Version : 4.1AR (Nov.2016)

-Data contained in the Catalog may be subject to change without advance notice for improvement of performance&safety of Product.
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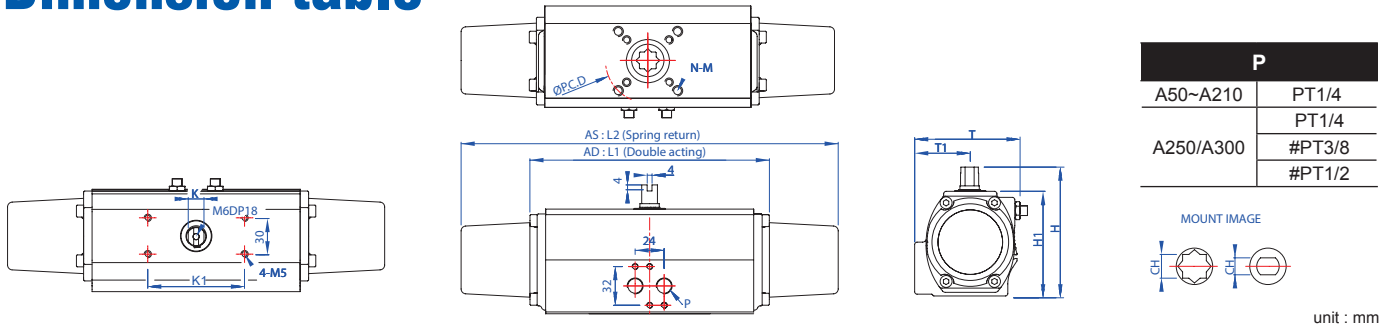
► Part list



► Operating mechanism



► Dimension table



unit : mm

MODEL	K1	ISO	P.C.D(Ø)	N-G	K	L1	L2	T	T1	H	H1	CH	DTH	AD Wt(Kg)	AS Wt(Kg)
A50	80	F03/F05/ F07	36/50/70	4-M5/M6/M8	9	162	257	75	40	90	70	11*11	13	1.4	1.6
												#14*14	14		
												#9.7*Ø15	14		
A65	80	F05/F07	50/70	4-M6/M8	13	202	314	89	46	107	87	14*14	17	2.3	3.0
												#11.7*Ø17	17		
												#9.7*Ø15	14		
A80	80	F07	70	4-M8	13	262	430	101	49.5	126	106	17*17	19	3.9	5.3
												#14.7*Ø19	20		
A100	80	F07/F10	70/102	4-M8/M10	19	311	500	129	61.5	148	128	22*22	26	6.7	9.5
												#17.7*Ø22	26		
A125	80	F07/F10	70/102	4-M8/M10	19	390	606	151	71.5	174	154	22*22	26	11.3	17.6
A140	80	F10/F12	102/125	4-M10/M12	24	431	682	164	77	192	172	27*27	30	16.4	23.9
												#22*22			
A160	80	F14	140	4-M16	24	506	781	188	89	216	196	36*36	30	23.7	36.6
		#F10/F12	#102/125	#4-M10/M12								#27*27			
A185	80	F14	140	4-M16	24	578	894	217	102	244	224	36*36	30	34.8	56.9
A210	130	F16	165	4-M20	36	605	982	231	115	284	254	46*46	60	45.5	77.2
		#F14										#36*36	50		
A250	130	F16	165	4-M20	36	755	1108	301	152	335	305	46*46	60	65.8	119.6
A300	130	F16/F25	165/254	4-M20/8-M16	36	900	1344	360	170	408	378	55*55	60	165.0	275.5

*# is optional.

► Selection guide

Valve Size		Double acting		Spring return	
		Ball valve	Butterfly valve	Ball valve	Butterfly valve
1/2"	15A	AD50		AS50	
3/4"	20A				
1"	25A				
1-1/4"	32A	AD65		AS65	
1-1/2"	40A				
2"	50A				
2-1/2"	65A	AD80	AD50	AS80	AS50
3"	80A				
4"	100A				
5"	125A	AD100	AD65	AS100	AS65
6"	150A	AD125		AS125	
8"	200A	AD140		AS140	
10"	250A	AD160	AD80	AS160	AS100
12"	300A	AD185		AS185	
14"	350A	AD210		AS210	
16"	400A	AD250	AD100	AS250	AS125
18"	450A	AD300		AS300	
20"~22"	500A~550A			AD125	
24"~32"	600A~800A		AD140	AS160	
34"~40"	850A~1000A		AD160	AS185	
			AD185	AS210	
			AD210	AS250	
			AD250	AS300	
			AD300		

•The above data is for reference only; the actual assembly may be different depending on valve material, pressure, structure, fluid and operational environment.

•The data is not legally effective and therefore should not be used as legal ground.

▶ AD series Torque table

unit : Nm

Model	Angle	Supply Air											
		3Bar		4Bar		5Bar		6Bar		7Bar		8Bar	
		Close	Open	Close	Open	Close	Open	Close	Open	Close	Open	Close	Open
AD50	0°	31.4	24.7	42.8	32.3	54.2	39.9	66.5	47.5	78.9	54.2	92.2	60.8
	45°	15.2	15.2	20.0	20.0	25.7	24.7	30.4	29.5	36.1	34.2	40.9	39.9
	90°	23.8	29.5	31.4	39.9	39.0	48.5	46.6	59.9	53.2	71.3	60.8	82.7
AD65	0°	77.9	54.2	108.3	69.4	138.7	84.6	169.1	99.8	199.5	115.0	229.9	130.2
	45°	35.2	33.3	45.6	43.7	57.0	55.1	68.4	65.6	80.8	76.0	92.2	87.4
	90°	52.3	65.6	69.4	88.4	85.5	111.2	102.6	134.0	119.7	156.8	136.8	179.6
AD80	0°	152.0	99.8	209.0	133.0	266.0	166.3	323.0	199.5	380.0	228.0	437.0	261.3
	45°	66.5	57.0	90.3	76.0	109.3	95.0	133.0	114.0	156.8	137.8	175.8	161.5
	90°	04.5	118.8	137.8	166.3	166.3	218.5	199.5	266.0	232.8	318.3	266.0	365.8
AD100	0°	232.8	180.5	323.0	247.0	399.0	304.0	475.0	365.8	560.5	418.0	646.0	470.3
	45°	114.0	109.3	152.0	147.3	190.0	185.3	232.8	223.3	275.5	266.0	318.3	304.0
	90°	190.0	190.0	256.5	266.0	318.3	342.0	384.8	418.0	446.5	494.0	508.3	560.5
AD125	0°	551.0	389.5	750.5	508.3	997.5	631.8	1,197.0	745.8	1,396.5	855.0	1,596.0	959.5
	45°	247.0	242.3	332.5	323.0	413.3	399.0	498.8	475.0	584.3	555.8	665.0	631.8
	90°	394.3	451.3	527.3	612.8	646.0	821.8	774.3	983.3	893.0	1,144.8	1,002.3	1,306.3
AD140	0°	741.0	589.0	1,026.0	779.0	1,311.0	969.0	1,596.0	1,159.0	1,881.0	1,339.5	2,166.0	1,491.5
	45°	337.3	318.3	451.3	427.5	570.0	532.0	684.0	641.3	798.0	750.5	912.0	864.5
	90°	527.3	579.5	693.5	788.5	878.8	1,007.0	1,040.3	1,263.5	1,206.5	1,539.0	1,368.0	1,805.0
AD160	0°	1,121.0	902.5	1,539.0	1,187.5	1,947.5	1,472.5	2,384.5	1,748.0	2,850.0	2,033.0	3,325.0	2,299.0
	45°	522.5	503.5	703.0	674.5	878.8	845.5	1,059.3	1,011.8	1,235.0	1,182.8	1,415.5	1,349.0
	90°	845.5	978.5	1,125.8	1,363.3	1,401.3	1,805.0	1,676.8	2,123.3	1,947.5	2,503.3	2,208.8	2,883.3
AD185	0°	1,833.5	1,187.5	2,470.0	1,520.0	3,097.0	1,900.0	3,686.0	2,251.5	4,294.0	2,584.0	4,902.0	2,888.0
	45°	802.8	817.0	1,073.5	1,092.5	1,339.5	1,349.0	1,605.5	1,615.0	1,881.0	1,890.5	2,156.5	2,147.0
	90°	1,311.0	1,406.0	1,729.0	1,919.0	2,137.5	2,441.5	2,527.0	3,021.0	2,916.5	3,581.5	3,296.5	4,256.0
AD210	0°	2,137.5	1,976.0	2,945.0	2,612.5	3,724.0	3,163.5	4,560.0	3,676.5	5,367.5	4,218.0	6,317.5	4,750.0
	45°	1,083.0	1,102.0	1,444.0	1,491.5	1,805.0	1,852.5	2,166.0	2,223.0	2,527.0	2,593.5	2,897.5	2,945.0
	90°	1,748.0	1,824.0	2,318.0	2,432.0	2,878.5	3,068.5	3,458.0	3,705.0	4,028.0	4,322.5	4,617.0	4,940.0
AD250	0°	4,180.0	3,277.5	5,700.0	4,275.0	7,220.0	5,272.5	8,835.0	6,222.5	10,260.0	7,125.0	11,780.0	7,970.5
	45°	1,890.5	1,890.5	2,498.5	2,498.5	3,087.5	3,097.0	3,705.0	3,743.0	4,341.5	4,389.0	4,968.5	4,978.0
	90°	3,201.5	3,448.5	4,218.0	4,617.0	5,158.5	5,776.0	6,080.0	6,944.5	7,039.5	8,189.0	7,970.5	9,443.0
AD300	0°	7,211.0	5,049.0	9,615.0	6,732.0	14,422.0	10,099.0	15,984.4	11,193.1	17,306.4	12,118.8	18,222.2	12,760.1
	45°	2,970.0	2,970.0	3,960.0	3,960.0	5,940.0	5,940.0	6,583.5	6,583.5	7,128.0	7,128.0	7,505.2	7,505.2
	90°	5,049.0	7,211.0	6,732.0	9,415.0	10,099.0	14,422.0	11,193.1	15,984.4	12,118.8	17,306.4	12,760.1	18,222.2

▶ AS series Torque table

unit : Nm

Model	Angle	Spring torque: Weak			Spring torque: Middle				Spring torque: Strong			
		Spring	Air:3Bar	Air:4Bar	Spring	Air:4Bar	Air:4.5Bar	Air:5Bar	Spring	Air:6Bar	Air:7Bar	Air:8Bar
AS50	0°	10.5	14.3	21.9	16.2	19.0	22.8	26.6	23.0	28.3	35.2	42.8
	45°	8.2	6.7	11.9	12.0	8.2	10.8	13.6	16.5	14.3	20.0	24.7
	90°	16.2	7.6	17.1	24.2	6.2	11.4	16.2	33.3	14.0	23.8	33.3
AS65	0°	29.5	35.2	53.2	43.7	41.3	49.4	58.0	56.6	64.9	83.6	95.0
	45°	15.6	17.1	28.5	24.9	17.6	23.3	28.5	34.4	32.3	44.7	56.1
	90°	29.2	28.5	47.0	47.2	20.0	30.6	41.2	65.2	39.9	60.8	84.6
AS80	0°	47.5	71.3	104.5	76.0	76.0	95.0	114.0	114.0	123.5	156.8	190.0
	45°	33.3	28.5	52.3	42.8	33.3	42.8	57.0	61.8	61.8	80.8	99.8
	90°	61.8	47.5	95.0	85.5	42.8	61.8	85.5	118.8	85.5	128.3	171.0
AS100	0°	95.0	109.3	161.5	114.0	133.0	166.3	199.5	152.0	237.5	299.3	356.3
	45°	61.8	47.5	90.3	76.0	57.0	76.0	95.0	99.8	118.8	161.5	204.3
	90°	109.3	61.8	133.0	152.0	61.8	99.8	133.0	209.0	152.0	228.0	304.0
AS125	0°	109.3	332.5	465.5	285.0	318.3	384.8	451.3	408.5	470.3	589.0	712.5
	45°	57.0	180.5	261.3	166.3	161.5	204.3	247.0	237.5	247.0	327.8	408.5
	90°	118.8	313.5	489.3	318.3	237.5	318.3	408.5	446.5	384.8	560.5	712.5
AS140	0°	133.0	475.0	674.5	384.8	460.8	555.8	655.5	574.8	693.5	883.5	1,073.5
	45°	85.5	228.0	342.0	228.0	199.5	247.0	313.5	332.5	318.3	427.5	532.0
	90°	152.0	251.8	532.0	446.5	275.5	375.3	475.0	617.5	465.5	674.5	883.5
AS160	0°	313.5	627.0	921.5	503.5	750.5	902.5	1,045.0	888.3	1,059.3	1,339.5	1,615.0
	45°	194.8	299.3	475.0	289.8	380.0	465.5	551.0	498.8	508.3	679.3	850.3
	90°	384.8	460.8	826.5	536.8	608.0	769.5	950.0	940.5	731.5	1,121.0	1,520.0
AS185	0°	456.0	912.0	1,282.5	1,035.5	921.5	1,111.5	1,292.0	1,548.5	1,292.0	1,634.0	1,976.0
	45°	266.0	513.0	779.0	579.5	465.5	598.5	741.0	874.0	703.0	969.0	1,235.0
	90°	541.5	798.0	1,301.5	1,140.0	608.0	855.0	1,092.5	1,681.5	931.0	1,415.5	1,928.5
AS210	0°	418.0	1,577.0	2,156.5	1,206.5	1,491.5	1,833.5	2,109.0	1,681.5	2,375.0	2,945.0	3,515.0
	45°	247.0	779.0	1,149.5	674.5	717.3	921.5	1,097.3	1,035.5	1,092.5	1,463.0	1,833.5
	90°	475.0	1,197.0	1,824.0	1,239.8	978.5	1,349.0	1,719.5	1,947.5	1,472.5	2,099.5	2,707.5
AS250	0°	731.5	2,631.5	3,686.0	2,213.5	2,555.5	3,097.0	3,610.0	3,277.5	3,942.5	4,864.0	5,776.0
	45°	418.0	1,425.0	2,090.0	1,254.0	1,282.5	1,605.5	1,947.5	1,738.5	2,071.0	2,726.5	3,363.0
	90°	874.0	2,299.0	3,515.0	2,432.0	1,767.0	2,318.0	2,945.0	3,315.5	2,888.0	4,028.0	5,168.0
AS300	0°	-	-	-	6,421.0	3,637.9	4,308.0	4,547.3	8,566.0	5,740.0	6,361.8	7,270.7
	45°	-	-	-	2,283.0	1,834.1	2,172.0	2,292.7	3,046.0	2,894.0	3,207.5	3,665.7
	90°	-	-	-	3,266.0	3,712.2	4,396.0	4,640.2	4,359.0	5,857.0	6,491.5	7,418.9

*You may select spring types from strong/middle/weak; if unspecified in P/O, the standard type (as shown in the blue box) is provided.

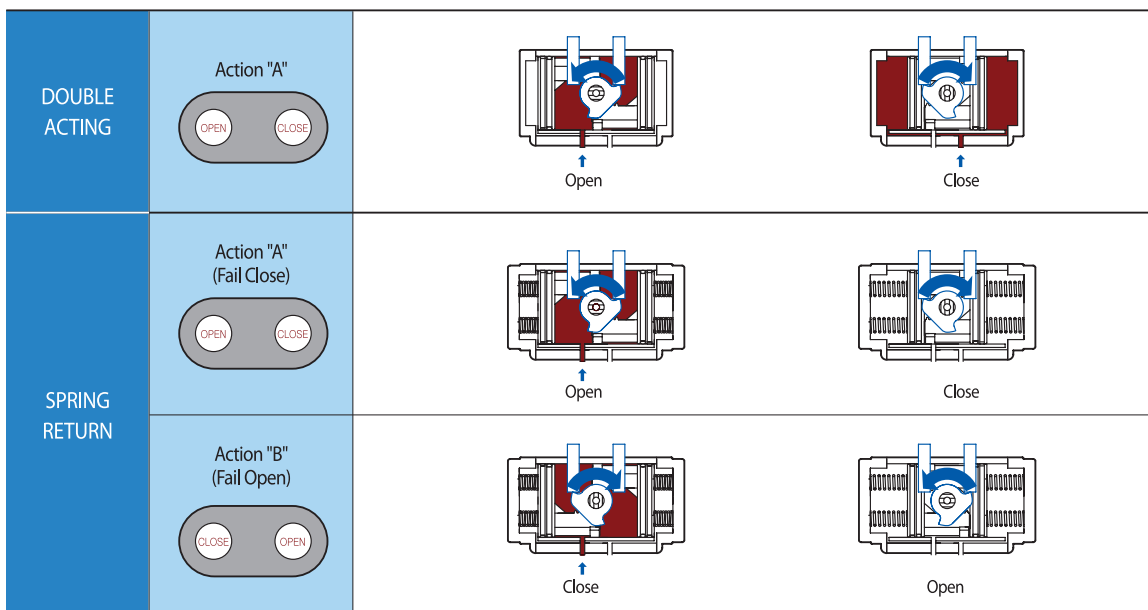
► Part list

Double acting

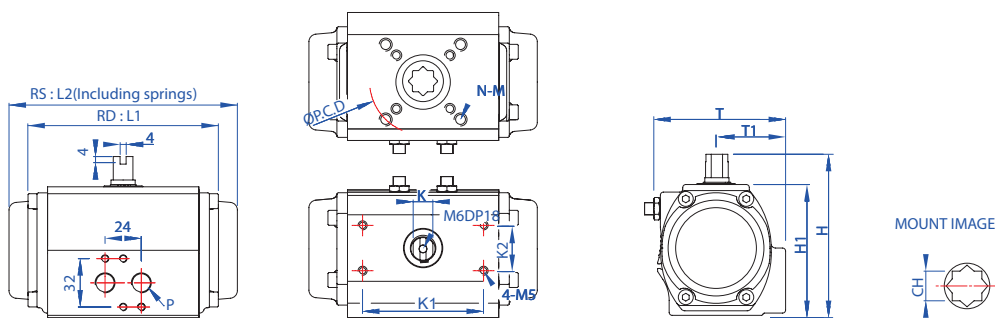
Spring return

1. Body
2. Shaft
3. Stopper
4. Bushing (Top)
5. Body O-ring (Top)
6. Bushing (Bottom)
7. Body O-ring (Bottom)
8. Body Washer (Bottom)
9. Body Washer (Top)
10. Body Snap-ring
11. Piston
12. Piston O-ring
13. Piston Guide-ring
14. Piston Pad
15. Cover
16. Cover O-ring
17. Cover Bolt
18. Spring Unit
19. Stopper Bolt
20. Stopper O-ring
21. Stopper Washer
22. Stopper Nut

► Operating mechanism



► Dimension table



P		
R32,R40	PT1/8	
R50~R210	PT1/4	
	K1	K2
R32	25.5	25.5
R40	50	25
R50~R160	80	30
R185	80	30
R210	130	30

unit : mm

MODEL	ISO	P.C.D(Ø)	N-G	K	L1	L2	T	T1	H	H1	CH	DTH	RD Wt(Kg)	RS Wt(Kg)
@RD32	F03	36	4-M5	7	66	-	45	25	55	45	9*9	9	0.3	-
@R40	F03/F05	36/50	4-M5/M6	9	97	97	63	32	75	55	9*9	9	0.5	0.6
	#F04	#42	#4-M5											
R50	F03/F05/F07	36/50/70	4-M5/M6/M8	9	119	133	75	40	90	70	11*11	13	1.0	1.1
	#F04	#42	#4-M5											
R65	F05/F07	50/70	4-M6/M8	13	131	154	89	46	106.5	86.5	14*14	16	1.4	1.5
	#F04/F07	#42/70	#4-M5/M8											
R80	F07	70	4-M8	19	189	220	101	49.5	126	106	17*17	19	2.9	3.3
R90	F07	70	4-M8	19	188	223	104	54.5	136	116	17*17	19	3.4	3.8
R100	F07/F10	70/102	4-M8/M10	19	229	256	132	61.5	148	128	22*22	26	4.7	5.4
											#17*17	19		
R115	F07/F10	70/102	4-M8/M10	19	264	302	137	67.5	163	143	22*22	26	6.7	7.5
R125	F07/F10	70/102	4-M8/M10	19	299	330	151	71.5	174	154	22*22	26	8.6	9.9
R140	F10/F12	102/125	4-M10/M12	24	332	389	164	77	192	172	27*27	30	12.4	14.5
											#22*22	26		
R160	F10/F12	102/125	4-M10/M12	24	364	416	188	103.5	216	196	27*27	30	16.9	19.5
R185	F12	125	4-M12	24	434	465	217	103	244	224	36*36	30	24.2	29.0
R210	F14	140	4-M16	36	444	527	231	115	284	254	36*36	30	32.3	37.9

*Model with '@' is compact type. They don't have angle stopper. *'#' is optional.

► Selection guide

Valve Size	Double acting			Spring return	
	Ball valve		Butterfly valve	Ball valve	Butterfly valve
1/2"	15A	RD32 (1piece)	RD50		RS40
3/4"	20A	RD40 (1piece)			RS50
1"	25A		RD65		RS65
1-1/4"	32A				RS80
1-1/2"	40A		RD80	RD50	RS90 RS50
2"	50A				RS100 RS65
2-1/2"	65A		RD90	RD65	RS115 RS80
3"	80A	RD100/RD115	RD80		RS125 RS90
4"	100A	RD115/RD125			RS140 RS100
5"	125A	RD140	RD90		RS160 RS115
6"	150A	RD160	RD100		RS185 RS125
8"	200A	RD185	RD125		RS210 RS140
10"	250A	RD210	RD140		RS160
12"	300A		RD160		RS185
14"	350A		RD185		RS210
16"	400A		RD210		

*The above data is for reference only; the actual assembly may be different depending on valve material, pressure, structure, fluid and operational environment.
*The data is not legally effective and therefore should not be used as legal ground.

► RD series Torque table

unit : Nm

MODEL	SUPPLY AIR						
	3Bar	4Bar	4.5Bar	5Bar	6Bar	7Bar	8Bar
RD32	2.4	3.1	3.5	3.9	4.8	5.7	6.6
RD40	5.5	7.4	8.4	9.2	11.1	13.0	14.8
RD50	9.4	12.5	14.3	15.9	19.1	22.5	25.8
RD65	18.3	24.7	27.8	30.8	36.8	42.9	49.2
RD80	44.5	58.9	66.5	74.4	89.3	104.3	117.8
RD90	57.2	76.2	85.7	95.2	114.2	133.2	152.2
RD100	79.5	105.5	118.8	132.1	158.7	185.3	211.9
RD115	123.5	166.3	187.2	209.0	251.8	294.5	337.3
RD125	161.5	218.5	247.0	270.8	327.8	384.8	437.0
RD140	237.5	318.3	361.0	399.0	479.8	560.5	641.3
RD160	327.8	441.8	494.0	551.0	669.8	779.0	893.0
RD185	475.0	641.3	722.0	802.8	964.3	1,125.8	1,287.3
RD210	679.3	912.0	1,030.8	1,144.8	1,382.3	1,615.0	1,847.8

► RS series Torque table

unit : Nm

Model	Spring unit	Supply Air															
		3Bar		4Bar		4.5Bar		5Bar		6Bar		7Bar		8Bar		SPRING	
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	90°	0°
RS40	WM	3.2	1.5	5.0	3.1	5.0	3.8	6.0	4.6	6.9	5.9	8.8	7.1	10.7	8.2	2.4	1.6
	WS	2.7	0.7	4.6	1.7	5.4	2.3	6.4	2.9	8.2	4.1	10.1	5.2	12.0	6.3	3.0	2.1
	M	2.6	0.8	4.6	2.4	5.4	3.2	6.3	4.1	8.1	5.9	10.0	7.7	11.9	9.3	4.1	2.8
	MS	1.9	-	3.7	1.0	4.6	1.8	5.4	2.5	7.3	4.2	9.1	5.6	11.0	6.7	4.9	3.0
	S	1.0	-	2.9	0.5	3.8	1.2	4.8	2.1	6.7	3.8	8.6	5.1	10.5	6.4	5.9	3.9
RS50	8	4.1	1.2	7.4	4.4	9.0	6.1	10.7	7.6	14.2	11.1	17.3	14.5	20.8	18.0	8.1	5.2
	9	3.6	-	6.9	3.4	8.6	5.2	10.3	6.9	13.6	10.2	16.9	13.6	20.3	17.0	9.1	6.0
	10	2.9	-	6.1	2.7	7.8	4.3	9.5	5.9	12.8	9.3	16.2	12.6	19.5	16.1	10.1	6.5
	11	2.3	-	5.6	1.5	7.3	3.1	8.9	4.8	12.4	8.2	15.7	11.5	19.0	14.9	11.0	7.0
	12	1.8	-	5.2	0.6	6.8	2.2	8.5	3.9	11.9	7.3	15.2	10.5	18.5	11.1	11.8	7.6
RS65	8	4.1	1.2	8.7	3.6	14.7	9.5	17.9	12.5	21.1	15.7	27.2	22.0	33.3	28.1	13.7	8.4
	9	3.6	-	7.6	1.3	14.0	7.5	17.1	10.7	20.0	13.8	26.3	20.0	32.4	26.4	15.2	9.7
	10	2.9	-	6.1	-	12.3	5.3	15.4	8.6	18.5	11.8	24.7	18.1	30.4	24.3	17.4	11.0
	11	2.3	-	5.4	-	11.4	3.8	14.4	7.6	17.6	10.4	23.8	16.7	30.0	22.8	18.6	12.2
	12	1.8	-	4.8	-	10.8	1.9	13.6	5.0	16.6	8.2	23.1	14.5	29.2	20.8	20.2	12.5
RS80	8	21.1	6.1	35.3	21.0	42.9	29.1	50.5	35.7	65.6	51.3	80.8	66.4	95.7	80.5	33.7	21.7
	9	17.6	-	32.4	15.7	39.9	23.8	47.4	30.4	62.4	45.3	77.7	60.1	92.5	75.1	38.3	24.8
	10	14.3	-	29.5	11.0	37.1	19.0	44.3	25.7	59.8	40.4	74.5	55.5	89.2	70.0	43.7	28.2
	11	11.4	-	26.2	5.7	33.4	12.9	40.5	20.4	56.1	35.3	70.8	49.9	85.8	64.4	47.7	30.3
	12	9.1	-	23.7	1.0	32.2	8.6	38.5	16.2	53.9	30.7	68.9	44.8	83.6	60.1	51.6	33.5
RS90	8	27.7	6.7	47.3	25.7	56.6	35.2	65.8	44.7	85.1	63.7	104.1	82.7	123.1	101.7	43.9	27.2
	9	23.1	-	42.5	18.8	51.6	28.9	61.4	38.0	80.8	57.4	100.0	77.0	119.0	96.0	49.8	30.7
	10	19.2	-	38.0	12.7	47.5	21.9	57.0	31.4	76.0	50.8	95.0	69.8	114.0	89.0	56.5	34.5
	11	16.9	-	35.0	6.5	44.4	16.2	54.0	25.7	73.2	44.7	92.2	63.7	111.2	82.7	61.8	37.8
	12	12.8	-	31.5	-	41.5	9.5	50.0	19.2	69.4	38.0	88.6	57.0	107.4	76.5	67.5	40.7
RS100	8	34.9	4.8	60.8	29.6	74.1	43.7	86.7	56.1	113.1	81.9	139.7	108.3	166.3	135.9	67.6	40.9
	9	30.6	-	57.0	20.9	70.3	33.7	83.1	46.6	109.3	74.1	135.9	100.2	162.5	126.4	76.4	45.6
	10	25.2	-	52.7	11.8	66.9	24.1	79.3	36.9	105.5	64.1	132.1	90.0	158.7	116.9	87.2	50.4
	11	20.5	-	46.4	1.9	59.5	14.3	72.4	28.0	98.6	53.8	125.4	79.3	152.0	105.5	93.8	55.7
	12	13.8	-	40.3	-	52.9	4.8	65.6	19.0	92.6	45.8	119.2	71.2	145.8	97.9	102.0	60.6
RS115	8	61.8	23.8	104.5	66.5	128.3	85.5	147.3	109.3	190.0	152.0	232.8	190.0	275.5	237.5	85.5	52.3
	9	52.3	9.5	95.0	52.3	118.8	71.3	137.8	95.0	185.3	142.5	228.0	180.5	270.8	223.3	99.8	61.8
	10	42.8	-	85.5	42.8	109.3	61.8	128.3	80.8	175.8	123.5	218.5	166.3	256.5	209.0	114.0	66.5
	11	38.0	-	80.8	28.5	104.5	47.5	123.5	71.3	166.3	114.0	209.0	156.8	251.8	199.5	123.5	76.0
	12	33.3	-	71.3	14.3	95.0	38.0	114.0	57.0	156.8	99.8	199.5	142.5	242.3	185.3	133.0	80.8
RS125	8	76.0	28.5	128.3	80.8	156.8	109.3	180.5	137.8	237.5	194.8	289.8	247.0	346.8	304.0	114.0	71.3
	9	66.5	9.5	118.8	66.5	147.3	95.0	175.8	123.5	228.0	175.8	280.3	232.8	332.5	285.0	133.0	85.5
	10	52.3	-	109.3	47.5	137.8	76.0	161.5	104.5	218.5	161.5	270.8	213.8	323.0	270.8	147.3	95.0
	11	42.8	-	99.8	33.3	128.3	61.8	152.0	85.5	209.0	142.5	261.3	199.5	313.5	251.8	161.5	104.5
	12	33.3	-	90.3	19.0	114.0	42.8	142.5	71.3	194.8	123.5	251.8	180.5	304.0	232.8	175.8	114.0
RS140	8	114.0	42.8	194.8	123.5	237.5	166.3	275.5	204.3	356.3	289.8	437.0	370.5	517.8	451.3	175.8	104.5
	9	95.0	14.3	175.8	99.8	218.5	142.5	256.5	180.5	337.3	266.0	418.0	346.8	498.8	427.5	194.8	118.8
	10	85.5	-	166.3	76.0	204.3	118.8	242.3	156.8	323.0	242.3	408.5	323.0	484.5	403.8	218.5	137.8
	11	66.5	-	147.3	47.5	190.0	90.3	228.0	133.0	308.8	213.8	389.5	299.3	470.3	380.0	242.3	152.0
	12	52.3	-	133.0	28.5	175.8	66.5	213.8	109.3	294.5	194.8	375.3	275.5	456.0	356.3	266.0	166.3
RS160	8	147.3	52.3	261.3	166.3	318.3	218.5	375.3	280.3	489.3	394.3	603.3	508.3	712.5	622.3	242.3	161.5
	9	123.5	14.3	242.3	128.3	299.3	185.3	356.3	242.3	470.3	356.3	584.3	470.3	698.3	584.3	275.5	185.3
	10	104.5	-	218.5	99.8	270.8	152.0	327.8	209.0	446.5	323.0	560.5	437.0	669.8	551.0	313.5	204.3
	11	80.8	-	194.8	61.8	251.8	114.0	308.8	175.8	422.8	289.8	532.0	403.8	650.8	517.8	337.3	228.0
	12	66.5	-	175.8	28.5	232.8	85.5	289.8	142.5	403.8	256.5	513.0	365.8	627.0	479.8	365.8	247.0
RS185	8	204.3	66.5	365.8	228.0	446.5	304.0	532.0	384.8	693.5	546.3	850.3	703.0	1,011.8	864.5	370.5	251.8
	9	171.0	9.5	337.3	171.0	418.0	251.8	494.0	332.5	660.3	494.0	821.8	660.3	978.5	817.0	422.8	285.0
	10	137.8	-	304.0	118.8	384.8	199.5	460.8	280.3	627.0	446.5	788.5	608.0	945.3	769.5	465.5	318.3
	11	104.5	-	266.0	61.8	346.8	152.0	427.5	232.8	593.8	394.3	750.5	555.8	912.0	712.5	508.3	346.8
	12	71.3	-	232.8	23.8	313.5	99.8	394.3	180.5	555.8	342.0	717.3	498.8	874.0	655.5	560.5	380.0
RS210	8	332.5	152.0	570.0	380.0	684.0	498.8	802.8	617.5	1,035.5	850.3	1,263.5	1,078.3	1,496.3	1,311.0	489.3	327.8
	9	285.0	76.0	517.8	313.5	636.5	432.3	750.5	546.3	988.0	779.0	1,216.0	1,016.5	1,448.8	1,244.5	555.8	375.3
	10	232.8	9.5	465.5	242.3	584.3	356.3	703.0	475.0	935.8	712.5	1,168.5	945.3	1,401.3	1,173.3	622.3	427.5
	11	185.3	-	422.8	175.8	532.0	294.5	655.5	408.5	888.3	646.0	1,121.0	878.8	1,353.8	1,111.5	684.0	465.5
	12	147.3	-	384.8	114.0	498.8	237.5	612.8	342.0	850.3	574.8	1,083.0	812.3	1,315.8	1,040.3	745.8	503.5